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| 10/686,238 | 10/15/2003 | Frank William Weber | 0091/01263 | 6338 |

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| EXAMINER | |
|---|---|
| PRICE, CARL D | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3749 | |

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

5

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/686,238 | WEBER ET AL. | |
| | Examiner | Art Unit | |
| | CARL D. PRICE | 3749 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 09 January 2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### ***Response to Arguments***

Applicant's arguments with respect to claims **1-20** have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended the claims to be of a scope not previously considered. Consistent with applicant's argument that the prior art relied on in the previous office action fail to show, disclose and/or teach certain aspects of applicant's invention now recited in the claims filed on 01/09/2006, applicant has amended the claims to include, for example, the following:

- a tower having heat transferring materials in an upper portion; and

- a means of gas egress attached to a second end of said manifold and positioned above the water surface in a vertically extending space in a middle portion of said tower, said egress means configured to prevent water from entering said second end of said manifold, said egress means further configured to prevent the impedance of gas emanating said second end of said manifold.

Regarding the now claimed recitation that the egress means is further configured to "***prevent the impedance***" of gas emanating the second end of said manifold, it must be noted however that this language is not commensurate with the scope of applicant's remarks. In an attempt to distinguish the prior art of record from the claimed invention applicant suggests that the various prior art references of record do not disclose, teach or suggest **"reducing",** not "preventing" (claims 1 and 20), the impedance of heated gas emanating from an upper end of a vertical conduit. It must be further noted that any flow of a gas passing through a conduit necessarily encounters impedance. Therefore, to claim that the flow impedance is "prevented" is not the same as providing means for "reducing" the flow impedance since it is not possible to "prevent" all flow impedance in the manner suggested by applicant's claims.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The following prior art rejection of the claims now addresses the scope of the invention now claimed.

## ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1-20** are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 1-20 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the reply filed 01/09/2006. In that paper, applicant has stated that the prior art of record from the claimed invention differs from the various prior art references of record which do not disclose, teach or suggest **"reducing"** impedance of heated gas emanating from an upper end of a vertical conduit and this statement indicates that the invention is different from what is defined in the claim(s) which require "preventing impedance" of heated gas emanating from an upper end of a vertical conduit.

## ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

> such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

## *Claims: Rejected under 35 U.S.C. 103(a)*

Claims 1-**14** and **16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US004753220 (LUTZEN et al)** in view of **US003428559 (McInnis)** or **US000656813 (Cohen)**.

**US004753220 (LUTZEN et al)** discloses a combination direct/indirect liquid heating device comprising:

- a tower (12') having heat transferring materials in an upper portion (21', 22');
- a cold water inlet conduit (33') in communication with a first end of said tower;
- a hot water collection tank (24') in communication with said tower, said tank adapted a hot gas manifold (60) having a first end adapted to receive hot gases, said manifold positioned in the tank so as to be partially submerged below the water surface to collect water and there form a water surface; and
    - a means of gas egress (68), including a conical cap (64) attached to a second end of said manifold and positioned above the water surface, the egress means configured to prevent water from entering said manifold; and
- a water filled sleeve (50') forming a annular space around the manifold.

**US004753220 (LUTZEN et al)** shows and discloses the invention substantially as set forth in the claims with possible exception to:

- means to prevent, or reduce, impedance of gas emanating the second end of the manifold (e.g. - using a shield or cap that is configured to reduce impedance by designing the shield to be larger in volume than the heated gas conduit inserted therein, or by designing the shield to be vertically and distally separated from the open end of the combustion chamber portion (see page 6, lines 10-16 of applicant's remarks filed on 01/09/2006);
- the vertical riser is integrally molded to the sleeve;
- parallel manifold sections;
- the manifold sections including external heat transfer enhancing fins;
- the egress being hemispherical or flat with a conical pleated periphery.

**US003428559 (McInnis)** teaches, form applicant's same submerged water heater field of endeavor, means to prevent, or reduce, impedance of gas emanating the second end of the manifold by arranging a shield or cap (24) that is configured to reduce impedance by designing the shield to be vertically and distally separated from the open end (31) of the combustion chamber portion.

**US000656813 (Cohen)** teaches, form applicant's same submerged water heater field of endeavor, means to prevent, or reduce, impedance of gas emanating the second end of the manifold by arranging a shield or cap (24) that is configured to reduce impedance by designing the shield (F) to be larger in volume than the heated gas conduit (D, l, l') inserted therein. **US000656813 (Cohen)** provides a manifold egress (D, l, l') with a flue gas baffles and cooling plates (E', F, G) including conical and curved surfaces and corrugated (i.e. – pleated) or serrated edges (h, m) for the purpose of providing a non-laminar downward flow of water (d').

In regard to claims **1-14** and **16**, for the purpose of providing a non-laminar downward flow of water in order to enhance the contact of flue gases with water to be heated by designing the shield to be larger in volume than the heated gas conduit or by designing the shield to be vertically and distally separated from the open end of the combustion chamber portion, it would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the baffle of **US004753220 (LUTZEN et al)** to be formed to prevent, or reduce flow impedance, in view of the teachings of **US003428559 (McInnis)** or **US000656813 (Cohen).** Furthermore, for the purpose of providing effective contact of the hot flue gases and downward directed relatively cool water, it would have been obvious to a person having ordinary skill in the art form the shield to include both a flue gas baffle and cooling plate having conical and curved surfaces and corrugated, pleated or serrated edges and overflow flow ports, in view of the teaching of **US00656813 (COHEN).** Also, in regard to claims **2, 3, 9, 12** and **16,** since the configuration of the manifold flow path (i.e. – continuous or parallel), a flat region on the baffle, and the cap in the shape of a hemisphere, the manner of forming (i.e. – integrally molding he vertical riser tot eh sleeve, etc. would necessarily depend on a variety of design concerns and/or parameters, such as the over all shape and size of the apparatus, availability and cost of materials, the type and amount of fuel used, etc., to form the various elements of these claims in the manner specified can be viewed as nothing more that merely matters of choice in design, absent the showing of any new or unexpected results produced therefrom over the prior art of record. In regard to claim **4**, Official Notice is taken that it is well known to provide heat exchange surfaces with externally protruding fins to enhance heat transfer. Therefore, in regard to claim **4**, in view of that which is well known in the art of heat exchange and for the known the purpose of enhancing the transfer to heat between the manifold and surrounding water, it would have been obvious to a person having ordinary skill in the art to modify the manifold of **US004753220 (LUTZEN et al)** to include fins.

Claims **15** and **17-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US004753220 (LUTZEN et al)** in view of **US003428559 (McInnis)** or **US000656813 (Cohen),** as applied to claim 1 above, and further in view of **US005799620 (CLEER, Jr. et al).**

**US004753220 (LUTZEN et al)** shows and discloses the invention substantially as set forth in the claims with possible exception to:

- a longitudinally extending gas conduit terminating in a means of gas egress;
- a sleeve surrounding said gas conduit so as to form an annular space adapted to receive water;
- a means for contacting water with gas emanating from the gas egress means;
- a means for water ingress to the annular space;
- a means for water egress from the annular space; and
- overflow means.

**US005799620 (CLEER, Jr. et al)** shows and disclose a water heater comprising:

- a longitudinally extending gas conduit (21) terminating in a means of gas egress (22, 23, 23');
- a sleeve surrounding (25) said gas conduit so as to form an annular space adapted to receive water (27);
- a means for contacting water (44) with gas emanating from the gas egress means;
- a means for water ingress (45) to the annular space;
- a means for water egress (36) from the annular space; and overflow means (29, 30, 31).

Regarding water level control maintain the water temperature and volume within predetermined levels, **US005799620 (CLEER, Jr. et al)** discloses the following:

> (7) After installation of the boiler 10 and during use thereof, liquid 27 is disposed within the boiler casing 12 establishing a level L spaced from the bottom 25 of the boiler casing 12. **The level L may be maintained by any suitable conventional means which include conventional sensors of all types, automatic valve controls for conduits, or the like.** In the embodiment illustrated **the level L is maintained by a simple drain 29** disposed at the level L, and which has a U-shaped trap 30 formed therein. The trap 30 prevents the passage of gas from the casing 12 through the drain 29. The liquid being drained may be sewered into sewer 31, or treated (if necessary) and put to

> other uses. (Beginning at column 4, line 7)
>
> 12) While the circulating means 13 schematically illustrated in FIGS. 1 and 2 is a desirable simple arrangement, it is to be understood that any suitable conventional circulating means may be utilized. For example circulation may be by the thermosiphonic effect, or utilizing any type of powered circulating device or gravity flow. While it is preferred that the heat exchanger be an indirect heat exchanger such as a plate heat exchanger 37 (or any other type of conventional heat exchanger) at least partial direct heat exchange may be provided in some circumstances especially if the heat exchange fluid 14 is gaseous or a gel or slurry rather than liquid, and **any desired automatic or manual controls may be provided for the components, for example diverting the hot liquid from the pool 27 to a number of different uses either simultaneously or alternatively.** (Beginning at column 5, line 6)

In regard to claims **15** and **17-20,** for the purpose of providing suitable means for distributing the hot gas flow, providing for effective heat transfer, for controlling the level and flow characteristics of water during heating, etc., it would have been obvious to a person having ordinary skill in the art to modify **US004753220 (LUTZEN et al)** to include a longitudinally extending gas conduit terminating in a means of gas egress, a sleeve surrounding said gas conduit so as to form an annular space adapted to receive water, a means for contacting water with gas emanating from the gas egress means, a means for water ingress to the annular space, a means for water egress from the annular space and overflow means, in view of the teaching of **US005799620 (CLEER, Jr. et al).**

## ***Conclusion***

See the attached USPTO form 892 for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

## THIS ACTION IS MADE FINAL

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

## ***USPTO CUSTOMER CONTACT INFORMATION***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARL D. PRICE whose telephone number is (571) 272-4880. The examiner can normally be reached on Monday through Friday between 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on (571) 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CARL D. PRICE
Primary Examiner
Art Unit 3749

cp